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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/708,330

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Yang-En Wu

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NORTH AMERICA INTELLECTUAL PROPERTY CORPORATION

P.O. BOX 506

MERRIFIELD, VA 22116

EXAMINER

NGUYEN, THANH NHAN P

ART UNIT

PAPER NUMBER

2871

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
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3 MONTHS

01/17/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/708,330

Applicant(s)

WU, YANG-EN

Examiner

(Nancy) Thanh-Nhan P. Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 December 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-4,6-12,14-18 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 1-4,6-12 and 14-16 is/are allowed.
- 6) ☒ Claim(s) 17 and 18 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 February 2004 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: *element '80' in figure 4*. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Objections

Claim 17 is objected to because of the following informalities:

It is currently read as, "forming a conductive material layer ... to covering the surface of the photo spacers". It should be read as, "forming a conductive material layer ... to cover the surface of the photo spacers".

Claim 18 is objected to because of the following informalities:

It is currently read as, "An LCD..." It should be read as, "A LCD..."

Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 17 and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kodate (US 5,748,266) in view of Admission and Sasaki (US 2004/0027529).

Regarding claim 17, Kodate discloses (figs. 3, 6 & 8) a method for fabricating a liquid crystal display with a uniform common voltage, the method comprising:

- providing a lower substrate (12)
- forming a plurality of scan lines (24), a plurality of common electrodes (28), and a plurality of common electrode pads on an upper surface of the lower substrate, wherein the common electrodes are adapted to transmit a common voltage, and the common electrode pads are electrically connected to the common electrodes
- forming a plurality of data lines (26) on the upper surface of the lower substrate, wherein the data lines are arranged substantially perpendicular to the scan lines to form a pixel matrix comprising a plurality of pixels (10), and each pixel comprises a plurality of sub-pixels
- providing an upper substrate (72)

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- forming a plurality of spacers (78) on a bottom surface of the upper substrate, wherein each photo spacer is substantially aligned with one of the common electrode pads on the lower substrate
- forming a conductive material (30) on the bottom surface of the upper substrate to cover the surface of the photo spacers
- combining the upper substrate and the lower substrate face to face by using the spacers to support a space between the upper substrate and the lower substrate, and electrically connecting the conductive material layer covering the surface of each of the spacers to the common electrode pads corresponding to each of the photo spacers
- filling a plurality of liquid crystal molecules (in liquid crystal layer 34) in the space between the upper substrate and the lower substrate, and sealing (64) the space between the upper substrate and the lower substrate

Kodate lacks disclosure of the spacers are photo spacers.

Admission teaches the spacers are photo spacers for the benefit of controlling the dimensions and positions of the spacers and the uniformity of the cell gap accurately to raise the display performance, [par. 0005]. Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have the spacers are photo spacers for the benefit of controlling the dimensions and positions of the spacers and the uniformity of the cell gap accurately to raise the display performance.

Kodate further lacks disclosure of each photo spacer is located between adjacent pixels, and is not located between adjacent sub-pixels of a same pixel.

Sasaki discloses (fig. 15) each spacer (14) is located between adjacent pixels, and is not located between adjacent sub-pixels of a same pixel for the benefit of being able to reduce concentration of a load on the spacer(s), [par. 0029]. Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have each spacer is located between adjacent pixels, and is not located between adjacent sub-pixels of a same pixel for the benefit of being able to reduce concentration of a load on the spacer(s).

Regarding claim 18, Kodate discloses (figs. 3, 6 & 8) a LCD with a uniform common voltage, the LCD comprising:

- a lower substrate (12) comprising:
 - a plurality of scan lines (24) and a plurality of data lines (26), wherein the data lines are arranged substantially perpendicular to the scan lines to form a pixel matrix comprising a plurality of pixels (10), and each pixel comprises a plurality of sub-pixels
 - a plurality common electrode (28) adapted to transmit a common voltage; and a plurality of common electrode pads electrically connected to the common electrodes
- an upper substrate (72) positioned on the lower substrate oppositely, the upper substrate comprising:

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- a plurality spacers (78) positioned on a bottom surface of the upper substrate for supporting a space between the upper substrate and the lower substrate, wherein each of the spacers substantially aligns with one of the common electrode pads of the lower substrate
- a conductive material layer (30) positioned on the bottom surface of the upper substrate covering the spacers, wherein the conductive material layer covering the spacers is connected to each of the common electrode pads corresponding to each of the photo spacers
- a plurality of liquid crystal molecules (in liquid crystal layer 34) in the space between the upper substrate and the lower substrate

Kodate lacks disclosure of the spacers are photo spacers.

Admission teaches the spacers are photo spacers for the benefit of controlling the dimensions and positions of the spacers and the uniformity of the cell gap accurately to raise the display performance, [par. 0005]. Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have the spacers are photo spacers for the benefit of controlling the dimensions and positions of the spacers and the uniformity of the cell gap accurately to raise the display performance.

Kodate further lacks disclosure of each photo spacer is located between adjacent pixels, and is not located between adjacent sub-pixels of a same pixel.

Sasaki discloses (fig. 15) each spacer (14) is located between adjacent pixels, and is not located between adjacent sub-pixels of a same pixel for the benefit of being

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able to reduce concentration of a load on the spacer(s), [par. 0029]. Therefore, at the time the invention was made, it would have been obvious to a person of ordinary skill in the art to have each spacer is located between adjacent pixels, and is not located between adjacent sub-pixels of a same pixel for the benefit of being able to reduce concentration of a load on the spacer(s).

Allowable Subject Matter

Claims 1-4, 6-12 and 14-16 are allowed since there is no prior art of record that teaches or suggests a LCD with a uniform common voltage and the method for fabricating the LCD thereof layer comprising a relationship of various elements as claimed with the specific allowable subject matter cited in the following claims:

Claim 9 (device) & claim 1 (method):

- a lower substrate comprising:
 - a plurality of common electrodes adapted to transmit a common voltage
 - a plurality of common electrode pads electrically connected to the common electrodes, the common electrode pads and the common electrodes are positioned at the same plane on the lower substrate
- an upper substrate comprising:
 - a plurality of color filter; black matrices disposed between adjacent color filter; the black matrices being covered by the color filters, and each color filter having a lower surface
 - a plurality of photo spacers positioned on the upper substrate, wherein each of the photo spacers is in direct contact with the lower surfaces of adjacent

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color filters and corresponding to one of the black matrices and one of the common electrode pads of the lower substrate

-- a conductive material layer positioned on the upper substrate covering the photo spacers, wherein the conductive material layer covering the photo spacers is connected to each of the common electrode pads corresponding to each of the photo spacers

Claims 10-12 and 14-16 are allowed since they depend on allowed claim 9.

Claims 2-4 and 6-8 are allowed since they depend on allowed claim 1.

Response to Arguments

Applicant's arguments with respect to claims 17 and 18 have been considered but are moot in view of the new ground(s) of rejection.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US 2002/0060771.

US 2001/0026347.

US 2002/0075441.

US 6,930,747.

Contact Information

Any inquiry concerning this communication or earlier communications from the examiner should be directed to (Nancy) Thanh-Nhan P. Nguyen whose telephone number is 571-272-1673. The examiner can normally be reached on Monday to Friday.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on 571-272-1787. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

(Nancy) Thanh-Nhan P Nguyen

Examiner
Art Unit 2871

TN



David Nelms
Supervisory Patent Examiner
Technology Center 2800